

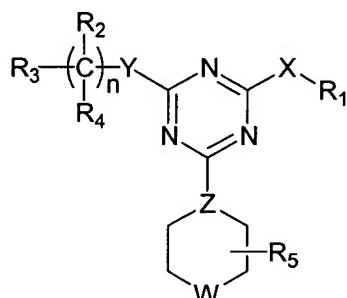
## AMENDMENTS TO THE CLAIMS

### Listing of Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

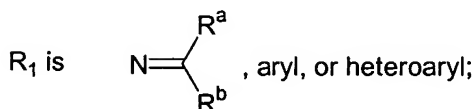
Claims 1 through 46 are Cancelled.

47. (Currently amended) A method for treating an interleukin-12 overproduction-related disorder, wherein the disorder is rheumatoid arthritis, sepsis, Crohn's disease, multiple sclerosis, psoriasis, or insulin-dependent diabetes mellitus, comprising administering to a subject in need thereof ~~an effective amount of~~ the compound of formula (I):



(I),

wherein



each of  $R_2$ ,  $R_4$ , and  $R_5$ , independently, is  $R^c$ , halogen, nitro, nitroso, cyano, azide, isothionitro,  $SR^c$ , or  $OR^c$ ;

$R_3$  is  $R^c$ , alkenyl, alkynyl, aryl, heteroaryl, cyclyl, heterocyclyl,  $OR^c$ ,  $OC(O)R^c$ ,  $SO_2R^c$ ,  $S(O_2)R^c$ ,  $S(O_2)NR^cR^d$ ,  $SR^c$ ,  $NR^cR^d$ ,  $NR^cCOR^d$ ,  $NR^cC(O)OR^d$ ,  $NR^cC(O)NR^cR^d$ ,  $NR^cSO_2R^d$ ,  $COR^c$ ,  $C(O)OR^c$ , or  $C(O)NR^cR^d$ ;

$n$  is 0, 1, 2, 3, 4, 5, 6, or 7;

$X$  is O, S,  $S(O)$ ,  $S(O_2)$ , or  $NR^c$ ;

Y is a covalent bond, CH<sub>2</sub>, C(O), C=N-R<sup>c</sup>, C=N-OR<sup>c</sup>, C=N-SR<sup>c</sup>, O, S, S(O), S(O<sub>2</sub>), or NR<sup>c</sup>;

Z is N or CH; and

W is O, S, S(O), S(O<sub>2</sub>), NR<sup>c</sup>, or NC(O)R<sup>c</sup>;

in which each of R<sup>a</sup> and R<sup>b</sup>, independently, is H, alkyl, aryl, heteroaryl; and each of R<sup>c</sup> and R<sup>d</sup>, independently, is H, alkyl, or alkylcarbonyl; or pharmaceutically acceptable salt thereof.

48. ~~(Cancelled) The method of claim 47, wherein the disorder is rheumatoid arthritis, sepsis, Crohn's disease, multiple sclerosis, psoriasis, or insulin-dependent diabetes mellitus.~~

49. (New) The method of claim 47, wherein the disorder is rheumatoid arthritis.

50. (New) The method of claim 47, wherein the disorder is Crohn's disease.

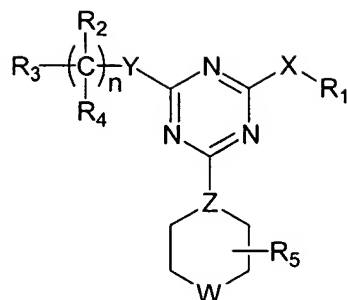
51. (New) The method of claim 47, wherein the disorder is multiple sclerosis.

52. (New) The method of claim 47, wherein the disorder is psoriasis.

53. (New) The method of claim 47, wherein the disorder is diabetes mellitus.

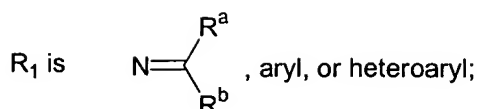
54. (New) The method of claim 47, wherein the disorder is sepsis.

55. (New) A pharmaceutical composition comprising the compound of formula (I):



(I).

wherein



each of  $R_2$ ,  $R_4$ , and  $R_5$ , independently, is  $R^c$ , halogen, nitro, nitroso, cyano, azide, isothionitro,  $\text{SR}^c$ , or  $\text{OR}^c$ ;

$R_3$  is  $R^c$ , alkenyl, alkynyl, aryl, heteroaryl, cyclyl, heterocyclyl,  $\text{OR}^c$ ,  $\text{OC(O)R}^c$ ,  $\text{SO}_2\text{R}^c$ ,  $\text{S(O}_2\text{)R}^c$ ,  $\text{S(O}_2\text{)NR}^c\text{R}^d$ ,  $\text{SR}^c$ ,  $\text{NR}^c\text{R}^d$ ,  $\text{NR}^c\text{COR}^d$ ,  $\text{NR}^c\text{C(O)OR}^d$ ,  $\text{NR}^c\text{C(O)NR}^c\text{R}^d$ ,  $\text{NR}^c\text{SO}_2\text{R}^d$ ,  $\text{COR}^c$ ,  $\text{C(O)OR}^c$ , or  $\text{C(O)NR}^c\text{R}^d$ ;

$n$  is 0, 1, 2, 3, 4, 5, 6, or 7;

$X$  is O, S,  $\text{S(O)}$ ,  $\text{S(O}_2\text{)}$ , or  $\text{NR}^c$ ;

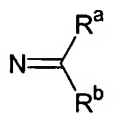
$Y$  is a covalent bond,  $\text{CH}_2$ ,  $\text{C(O)}$ ,  $\text{C=N-R}^c$ ,  $\text{C=N-OR}^c$ ,  $\text{C=N-SR}^c$ , O, S,  $\text{S(O)}$ ,  $\text{S(O}_2\text{)}$ , or  $\text{NR}^c$ ;

$Z$  is N or CH; and

$W$  is O, S,  $\text{S(O)}$ ,  $\text{S(O}_2\text{)}$ ,  $\text{NR}^c$ , or  $\text{NC(O)R}^c$ ;

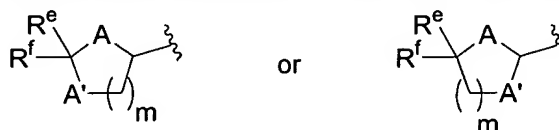
in which each of  $R^a$  and  $R^b$ , independently, is H, alkyl, aryl, heteroaryl; and each of  $R^c$  and  $R^d$ , independently, is H, alkyl, or alkylcarbonyl; or pharmaceutically acceptable salt thereof; and a pharmaceutically acceptable carrier.

56. (New) The pharmaceutical composition of claim 55, wherein  $R_1$  is



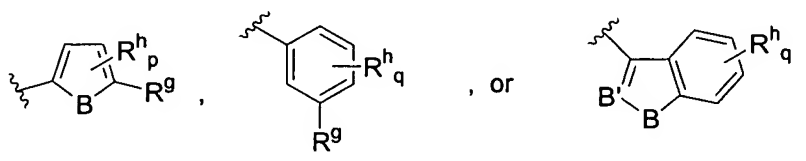
57. (New) The pharmaceutical composition of claim 56, wherein  $W$  is O.

58. (New) The pharmaceutical composition of claim 57, wherein  $R_5$  is H or alkyl.
59. (New) The pharmaceutical composition of claim 56, wherein X is  $NR^c$ .
60. (New) The pharmaceutical composition of claim 59, wherein  $R^c$  is H, methyl, ethyl, or acetyl.
61. (New) The pharmaceutical composition of claim 56, wherein Y is O or  $CH_2$ , and n is 0, 1, 2, 3, or 4.
62. (New) The pharmaceutical composition of claim 61, wherein  $R_3$  is aryl or heteroaryl.
63. (New) The pharmaceutical composition of claim 62, wherein  $R_3$  is pyridinyl.
64. (New) The pharmaceutical composition of claim 61, wherein  $R_3$  is  $OR^c$ ,  $SR^c$ ,  $C(O)OR^c$ , or  $C(O)NR^cR^d$ .
65. (New) The pharmaceutical composition of claim 61, wherein  $R_3$  is



in which each of A and  $A'$ , independently, is O, S, or NH;  
each of  $R^e$  and  $R^f$ , independently is H, alkyl, aryl, or heteroaryl; and  
m is 1 or 2.

66. (New) The pharmaceutical composition of claim 56, wherein one of  $R^a$  and  $R^b$  is



in which

B is  $\text{NR}^i$ , O, or S;

B' is N or  $\text{CR}^i$ ;

$\text{R}^g$  is H, alkyl, or alkoxyl;

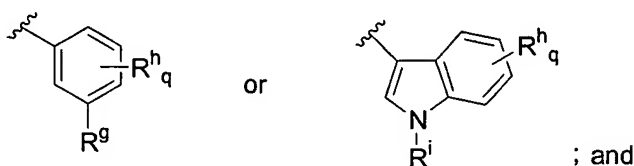
$\text{R}^h$  is halogen, CN, hydroxyl, alkyl, aryl, heteroaryl, alkoxyl, aryloxyl, or heteroaryloxyl;

$\text{R}^i$  is H, alkyl, or alkylcarbonyl;

p is 0, 1, or 2; and

q is 0, 1, 2, 3, or 4.

67. (New) The pharmaceutical composition of claim 66, wherein one of  $\text{R}^a$  and  $\text{R}^b$  is



the other of  $\text{R}^a$  and  $\text{R}^b$  is alkyl.

68. (New) The pharmaceutical composition of claim 67, wherein  $\text{R}^g$  is H, methyl, ethyl, methoxy, or ethoxy;  $\text{R}^h$  is F, Cl, CN, methoxy, methyl, or ethoxy;  $\text{R}^i$  is H, methyl, ethyl, or acetyl, and q is 0, 1, or 2.

69. (New) The pharmaceutical composition of claim 68, wherein  $\text{R}^g$  is methyl or methoxy;  $\text{R}^i$  is H; and q is 0.

70. (New) The pharmaceutical composition of claim 68, wherein W is O; and  $\text{R}_5$  is H or alkyl.

71. (New) The pharmaceutical composition of claim 70, wherein X is  $\text{NR}^c$ ; and  $\text{R}^c$  is H, methyl, ethyl, or acetyl.

72. (New) The pharmaceutical composition of claim 71, wherein Y is O or  $\text{CH}_2$ ; and n is 0, 1, 2, 3, or 4.

73. (New) The pharmaceutical composition of claim 72, wherein  $\text{R}_3$  is aryl or heteroaryl.

74. (New) The pharmaceutical composition of claim 73, wherein  $\text{R}_3$  is pyridinyl.

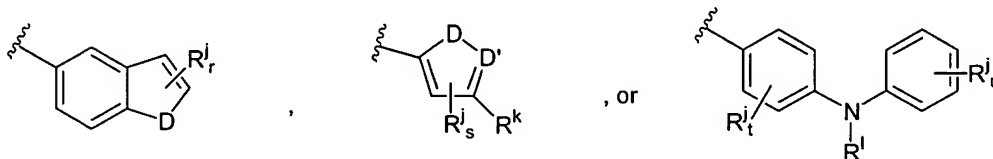
75. (New) The pharmaceutical composition of claim 68, wherein Y is O or CH<sub>2</sub>, and n is 0, 1, 2, 3, or 4.

76. (New) The pharmaceutical composition of claim 75, wherein R<sub>3</sub> is aryl or heteroaryl.

77. (New) The pharmaceutical composition of claim 76, wherein R<sub>3</sub> is pyridinyl.

78. (New) The pharmaceutical composition of claim 55, wherein R<sub>1</sub> is aryl or heteroaryl.

79. (New) The pharmaceutical composition of claim 77, wherein R<sub>1</sub> is



in which D is O, S, or NR<sup>m</sup>;

D' is N or CR<sup>m</sup>;

R<sup>j</sup> is halogen, CN, hydroxyl, alkyl, aryl, heteroaryl, alkoxy, aryloxy, or heteroaryloxy;

R<sup>k</sup> is aryl or heteroaryl;

R<sup>l</sup> is H, alkyl, or alkylcarbonyl;

R<sup>m</sup> is H, alkyl, or alkylcarbonyl;

r is 0, 1, or 2;

s is 0 or 1;

t is 0, 1, 2, 3, or 4; and

u is 0, 1, 2, 3, 4, or 5.

80. (New) The pharmaceutical composition of claim 79, wherein X is NR<sup>c</sup>; and R<sup>c</sup> is H, methyl, ethyl, or acetyl.

81. (New) The pharmaceutical composition of claim 80, wherein W is O; and R<sub>5</sub> is H or alkyl.

82. (New) The pharmaceutical composition of claim 81, wherein Y is O or CH<sub>2</sub>; and n is 0, 1, 2, 3, or 4.

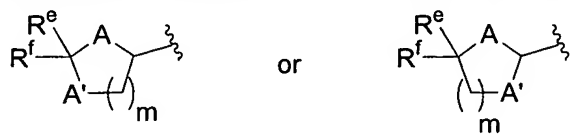
83. (New) The pharmaceutical composition of claim 79, wherein Y is O or CH<sub>2</sub>; and n is 0, 1, 2, 3, or 4.

84. (New) The pharmaceutical composition of claim 83, wherein R<sub>3</sub> is aryl or heteroaryl.

85. (New) The pharmaceutical composition of claim 84, wherein R<sub>3</sub> is pyridinyl.

86. (New) The pharmaceutical composition of claim 83, wherein R<sub>3</sub> is OR<sup>c</sup>, SR<sup>c</sup>, C(O)OR<sup>c</sup> or C(O)NR<sup>c</sup>R<sup>d</sup>.

87. (New) The pharmaceutical composition of claim 83, wherein R<sub>3</sub> is

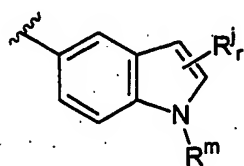


in which each of A and A', independently, is O, S, or NH;

each of R<sup>e</sup> and R<sup>f</sup>, independently is H, alkyl, aryl, or heteroaryl; and

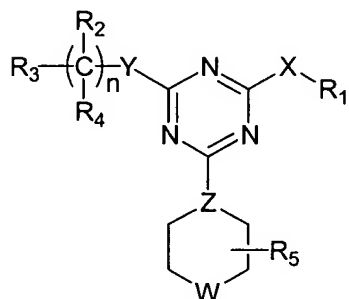
m is 1 or 2.

88. (New) The pharmaceutical composition of claim 83, wherein R<sub>1</sub> is



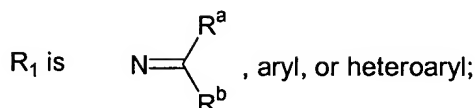
89. (New) The pharmaceutical composition of claim 88, wherein  $R^j$  is methyl, ethyl, propyl, or benzyl; and  $r$  is 1 or 2.

90. (New) The pharmaceutical composition comprising the compound of formula (I):



(I),

wherein



each of  $R_2$ ,  $R_4$ , and  $R_5$ , independently, is  $R^c$ , halogen, nitro, nitroso, cyano, azide, isothionitro,  $SR^c$ , or  $OR^c$ ;

$R_3$  is  $R^c$ , alkenyl, alkynyl, aryl, heteroaryl, cyclyl, heterocyclyl,  $OR^c$ ,  $OC(O)R^c$ ,  $SO_2R^c$ ,  $S(O_2)R^c$ ,  $S(O_2)NR^cR^d$ ,  $SR^c$ ,  $NR^cR^d$ ,  $NR^cCOR^d$ ,  $NR^cC(O)OR^d$ ,  $NR^cC(O)NR^cR^d$ ,  $NR^cSO_2R^d$ ,  $COR^c$ ,  $C(O)OR^c$ , or  $C(O)NR^cR^d$ ;

$n$  is 0, 1, 2, 3, 4, 5, 6, or 7;

$X$  is O, S,  $S(O)$ ,  $S(O_2)$ , or  $NR^c$ ;

$Y$  is a covalent bond,  $CH_2$ ,  $C(O)$ ,  $C=N-R^c$ ,  $C=N-OR^c$ ,  $C=N-SR^c$ , O, S,  $S(O)$ ,  $S(O_2)$ , or  $NR^c$ ;

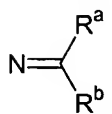
$Z$  is  $CH$ ; and

$W$  is O, S,  $S(O)$ ,  $S(O_2)$ ,  $NR^c$ , or  $NC(O)R^c$ ;

in which each of  $R^a$  and  $R^b$ , independently, is H, alkyl, aryl, heteroaryl; and each of  $R^c$  and  $R^d$ , independently, is H, alkyl, or alkylcarbonyl; or pharmaceutically acceptable salt thereof; and a pharmaceutically acceptable carrier.



91. (New) The pharmaceutical composition of claim 90, wherein R<sub>1</sub> is

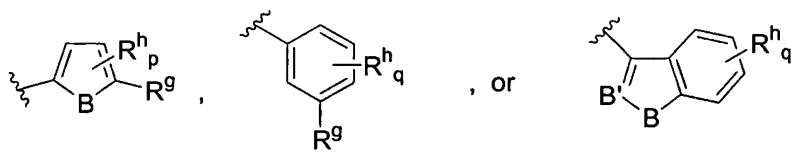


92. (New) The pharmaceutical composition of claim 91, wherein W is O; and R<sub>5</sub> is H or alkyl.

93. (New) The pharmaceutical composition of claim 91, wherein X is NR<sup>c</sup>; and R<sup>c</sup> is H, methyl, ethyl, or acetyl.

94. (New) The pharmaceutical composition of claim 91, wherein Y is O or CH<sub>2</sub>, and n is 0, 1, 2, 3, or 4.

95. (New) The pharmaceutical composition of claim 91, wherein one of R<sup>a</sup> and R<sup>b</sup> is



in which B is NR<sup>i</sup>, O, or S;

B' is N, CH, or CR<sup>i</sup>;

R<sup>g</sup> is H, alkyl, or alkoxy;

R<sup>h</sup> is halogen, CN, hydroxyl, alkyl, aryl, heteroaryl, alkoxy, aryloxy, or heteroaryloxy;

R<sup>i</sup> is H, alkyl, or alkylcarbonyl;

p is 0, 1, or 2; and

q is 0, 1, 2, 3, or 4.

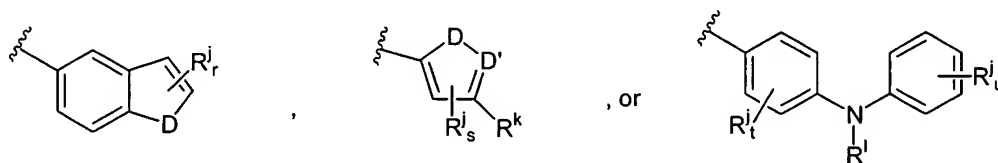
96. (New) The pharmaceutical composition of claim 90, wherein R<sub>1</sub> is aryl or heteroaryl.

97. (New) The pharmaceutical composition of claim 96, wherein W is O; and R<sub>5</sub> is H or alkyl.

98. (New) The pharmaceutical composition of claim 96, wherein X is NR<sup>c</sup>; and R<sup>c</sup> is H, methyl, ethyl, or acetyl.

99. (New) The pharmaceutical composition of claim 96, wherein Y is O or CH<sub>2</sub>; and n is 0, 1, 2, 3, or 4.

100. (New) The pharmaceutical composition of claim 96, wherein R<sub>1</sub> is



in which D is O, S, or NR<sup>m</sup>;

D' is N or CR<sup>m</sup>;

R<sup>j</sup> is halogen, CN, hydroxyl, alkyl, aryl, heteroaryl, alkoxy, aryloxy, or heteroaryloxy;

R<sup>k</sup> is aryl or heteroaryl;

R<sup>l</sup> is H, alkyl, or alkylcarbonyl;

R<sup>m</sup> is H, alkyl, or alkylcarbonyl;

r is 0, 1, or 2;

s is 0 or 1;

t is 0, 1, 2, 3, or 4; and

u is 0, 1, 2, 3, 4, or 5.